

prevalence of transformations throughout the Decapoda is not indicated, the only reference to the larval forms being under the head of *Brachyura*, and calculated to lead the student to the supposition that a metamorphosis is peculiar to that group of Decapods. Under the Myriopoda Sir John Lubbock's curious genus *Pauropus* ought to have received some notice. These are small matters; and we must congratulate the author on having so well accomplished his task.

Of the 'Advanced Text-Book,' we need only say that it is an abridgment of the Student's Manual, and follows the same general course of treatment and classification. It seems to us well suited for school purposes.

### MISCELLANEOUS.

*On the Assumption of the Adult Form by the Genera Cypræa and Ringicula, and by certain Species of the Genus Astarte.*

*To the Editors of the Annals and Magazine of Natural History.*

GENTLEMEN,—In the 'Eocene Bivalves,' just issued by the Palæontographical Society, several species of *Astarte* are described; and I have there stated my belief that some species of this genus have the peculiar character of producing an alteration in the ventral margin of the adult shell, the young and growing animal having this part always smooth, but that when full-grown it adds a row of denticulations to the inside of the ventral margin; and I called attention to the peculiarities of the genus *Cypræa* as throwing light upon the subject. It has always been said that the young of the *Cypræa* have invariably the outer lip sharp and plain, with a visible spire, but that, when full-grown, the animal contracts the aperture, inflects the outer lip, forms a row of denticles on each side of the opening, and covers over the spire; and when we find a shell in this last condition, we have supposed it to be an animal that has attained to its full proportions.

In the Red Crag the species *Trivia (Cypræa) europæa* has been found in great abundance; specimens have been obtained from that formation by hundreds; and it is by no means rare in the Coralline Crag; but in all my search in these deposits, I have never seen one of these shells that was in any other condition than that which is assumed by the full-grown individual. The specimens of this species in my own cabinet vary in size from  $\frac{1}{8}$  to nearly  $\frac{5}{8}$  of an inch in length.

There is another shell exceedingly abundant in the Coralline Crag, viz. *Ringicula buccinea*; and I have between three and four hundred specimens before me, every one of which has a thickened margin to the outer lip, and is presumably a full-grown shell. Now, although I have closely examined these, and many others of the same species, and have for years sifted great quantities of Crag, I have never seen one that had not a thickened margin to the outer lip (with the ex-

ception of about half a dozen which seemed to be, and probably were, fractured); and this is the more extraordinary, as all my Coralline-Crag specimens of this species have come from a locality, at Sutton, where at least nine tenths of the shells found are young, or at least specimens which have not attained to their full growth. The difference in size among my specimens of this *Ringicula* is very considerable, as might be supposed, some being as long again as others; and if the small ones had not been furnished with a thickened lip, there would have been no hesitation in referring them to the immature condition of the species. If these small specimens with a thickened lip be not in many instances young shells, may we not ask what has become of the immature specimens? Have they never died from any other causes than predaceous ones while under full age? I am inclined to believe that the small shells of *Trivia* and *Ringicula* may be mostly immature individuals which, by a law attaching to their structure, assumed, in anticipation of a natural death, this thickened margin to the outer lip. Of course, any immature specimens killed suddenly would retain their juvenile forms, but we must assume that nearly all killed suddenly were so killed for food, and consumed; so that we do not find these fossil, though in the recent state the immature forms ought to occur frequently as *living* shells.

In the genera *Cassis* and *Cassidaria* we often see that after this apparently adult character of a thickened lip, or varix, has been formed by the young animal, it had continued growing to its full size; and this early thickened lip is denoted by a ridge (or ridges) left upon the spire of the full-grown shell; but I have in vain looked for this ridge upon the spire of any of my numerous specimens of *Ringicula*, either large or small.

Perhaps some of your correspondents can throw a light upon this question.

I am, Gentlemen,  
Yours truly,

SEARLES V. WOOD.

Brentwood, Jan. 1871.

*Observations on the Invertebrata of Massachusetts.*

By ALFRED BELL, Esq.

*To the Editors of the Annals and Magazine of Natural History.*

GENTLEMEN,—I shall be glad if you will permit me to make a few remarks upon the new issue of Dr. Gould's Report on the Invertebrata of Massachusetts, just published.

It is to be regretted that, in bringing out a second edition, the works of European conchological authors have been so little consulted. A very little care would have tended to the reduction of errors and the avoidance of useless synonymy, thus advancing our present scientific knowledge.